

**EFFICIENT ELECTRONICS FOR A WALK-THROUGH METAL
DETECTOR**

ABSTRACT OF THE DISCLOSURE

A metal detection circuit that includes a power source and a connection to ground. At least one transmitter circuit is electrically coupled to the power source and ground and a transmit coil is electrically coupled to the transmitter circuit. At least one receiver coil has provided along with an amplifier to be electrically coupled to the receiver coil. An integrator is electrically coupled to the amplifier and a track/hold circuit is electrically coupled to the integrator. A filter is electrically coupled to the track/hold circuit and an output. The circuit provides a high amplitude, low duty cycle excitation pulse, which allows for the sensitivity of a high level excitation signal with the power economy of a much lower energy excitation signal. The receiver circuit collects and conditions the signals resulting from the relatively short duration, large amplitude excitation pulse, and goes in to hold mode during the relatively long charge and idle periods.

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